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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,606	03/17/2004	Osamu Kusumoto	60188-807	4190

7590

10/04/2005

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EXAMINER

HU, SHOUXIANG

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EX

Office Action Summary	Application No. 10/801,606	Applicant(s) KUSUMOTO ET AL.	
	Examiner Shouxiang Hu	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 10-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/17/04 & 6/17/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 10-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 20050727.

Drawings

2. Figure 9 is objected to as it should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant's admitted prior art ("AAPA").

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AAPA discloses a silicon carbide semiconductor device (Fig. 9; a DMOS-type FET; also see the relevant descriptions in the instant specification), comprising: a semiconductor layer made of silicon carbide (101-105); an electrode (108; a source electrode); and interlayer dielectric film (110; SiO₂); a gate electrode (109); and, an interconnection (111), wherein the electrode (108) naturally comprises a first electrode portion (the lower and middle portion of 108; in ohmic contact with the semiconductor layer) and a second electrode portion (the rest of 108, that covers the top face and side faces of the first electrode portion).

Regarding claim 4, the source electrode (108) in AAPA can be made of Ni.

Regarding claim 9, layer 101 in AAPA is readable as a substrate. It also includes the recited well region (103), contact regions (104); source regions (105); gate insulator 106; and, the drain electrode (107)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Ueno (US 2004/0036113).

The disclosure of AAPA is discussed as applied to claims 1-4, 6, 7 and 9 above.

Although AAPA does not expressly disclose that source electrode and the gate electrode can be both formed of a same material, one of ordinary skill in the art would readily recognize that such same-material gate and source electrodes can be desirably formed for simplifying process and/or material choices, as evidenced in Ueno (see the source electrode 47 and the gate electrode 46 in Fig. 3e; both are made from a layer comprising Al; see [0057]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the Al-comprised-same-material gate and source electrodes of Ueno into the device of AAPA, so that a semiconductor device with simplified process and/or material choices would be obtained.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References B-E are cited as being related to a SiC DMOS-type FET structure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

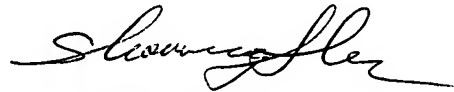
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH

September 28, 2005



SHOUXIANG HU
PATENT EXAMINER